

Anne Bourdon - Publication list and invited conferences up to july 2025

Publication list

112. V. P. Pasko, S. Celestin, A. Bourdon, R. Janalizadeh, Z. Pervez, J. Jansky, P. Gourbin, Photoelectric effect in air explains lightning Initiation and Terrestrial Gamma Ray flashes *Journal of Geophysical Research : Atmospheres*, 2025, 130, e2025JD043897
111. P. Chabert, A. Bourdon, B. Esteves, T. Lafleur, Steady-state plasma model of an iodine-fueled Hall thruster *J. Appl. Phys.*, 2025 ; 138 (4), 043303
110. F. Petronio, A. Alvarez Laguna, M. J. Guillon, A. Bourdon, P. Chabert, Refining the modeling strategy for anomalous electron transport in fluid simulations of Hall thrusters via insights from PIC simulations *Phys. Plasmas*, 2025, 32 (7), 073513.
109. V. P. Pasko, S. Celestin, A. Bourdon, Photoelectric Feedback Mechanism for Acceleration of Runaway Electrons in Gas Discharges at High Overvoltages *Physical Review Letters*, 2024, 133 (23), 235301
108. V. P. Pasko, S. Celestin, A. Bourdon, Photoelectric Feedback Mechanism for Acceleration of Runaway Electrons in Gas Discharges at High Overvoltages *Physical Review Letters*, 2024, 133 (23), 235301
107. T. Ben Slimane, A. Leduc, L. Schiesko, A. Bourdon, P. Chabert, Analysis and control of Hall effect thruster using optical emission spectroscopy and artificial neural network *Journal of Applied Physics*, 2024, 136 (15)
106. F Petronio, A Alvarez Laguna, A Bourdon, P Chabert (2024) Study of the breathing mode development in Hall thrusters using hybrid simulations, *Journal of Applied Physics* 135 (7)
105. VP Pasko, S Celestin, A Bourdon, R Janalizadeh, J Jansky (2023) Conditions for inception of relativistic runaway discharges in air, *Geophysical Research Letters* 50 (7)
104. AA Laguna, B Esteves, JL Raimbault, A Bourdon, P Chabert (2023) Discussion on the transport processes in electrons with non-Maxwellian energy distribution function in partially-ionized plasmas, *Plasma Physics and Controlled Fusion* 65 (5), 054002
103. F Petronio, T Charoy, A Alvarez Laguna, A Bourdon, P Chabert (2023) Two-dimensional effects on electrostatic instabilities in Hall thrusters. II. Comparison of particle-in-cell simulation results with linear theory dispersion relations, *Physics of Plasmas* 30 (1) 3
102. F Petronio, T Charoy, A Alvarez Laguna, A Bourdon, P Chabert (2023) Two-dimensional effects on electrostatic instabilities in Hall thrusters. I. Insights from particle-in-cell simulations and two-point power spectral density reconstruction, *Physics of Plasmas* 30 (1) 7
101. B Esteves, F. Marmuse, C. Drag, A. Bourdon, A. Alvarez-Laguna and P. Chabert (2022) Charged-particles measurements in low-pressure iodine plasmas used for electric propulsion, *Plasma Sources Science and Technology* 31 (8), 085007
100. N. Barleon, L. Cheng, B. Cuenot, O. Vermorel, A. Bourdon (2022) Investigation of the impact of NRP discharge frequency on the ignition of a lean methane-air mixture using fully coupled plasma-combustion numerical simulations, *Proceedings of the Combustion Institute* 39 (4), 5521-5530

99. I Adamovich, S Agarwal, E Ahedo, L L Alves, S Baalrud, N Babaeva, A Bogaerts, A Bourdon, P J Bruggeman, C Canal, E H Choi, S Coulombe, Z Donko, D B Graves, S Hamaguchi, D Hegemann, M Hori, H-H Kim, G M W Kroesen, M J Kushner, A Laricchiuta, X Li, T E Magin, S Mededovic Thagard, V Miller, A B Murphy, G S Oehrlein, N Puac, R M Sankaran, S Samukawa, M Shiratani, M Simek, N Tarasenko, K Terashima, E Thomas Jr, J Trieschmann, S Tsikata, M M Turner, I J van der Walt, M C M van de Sanden, T von Woedtke (2022) The 2022 Plasma Roadmap : low temperature plasma science and technology *Journal of Physics D : Applied Physics*, 55 (37), 373001
98. A. Laguna, B. Esteves, A. Bourdon, P. Chabert (2022) A regularized high-order moment model to capture non-Maxwellian electron energy distribution function effects in partially ionized plasmas *Physics of Plasmas*, 29 (8), 083507
(article selected in the "editor's pick" collection of Physics of Plasmas)
97. T. Ben Slimane, C. Honoré, T. Charoy, A. Bourdon and P. Chabert (2022) Analysis of small scale fluctuations in Hall effect thrusters using virtual Thomson scattering on PIC simulations, *Physics of Plasmas*, 29, 023501
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95. L. Cheng, N. Barléon, B. Cuenot, O. Vermorel and A. Bourdon (2022) Plasma assisted combustion of methane-air mixtures : Validation and reduction, *Combustion and Flame*, 240, 111990
94. T.L. Chng, D.Z. Pai, O. Guaitella, S.M. Starikovskaia and A. Bourdon (2022) Effect of the electric field profile on the accuracy of E-FISH measurements in ionization waves, *Plasma Sources Science and Technology*, 31 (1), 015010
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92. T. Charoy, T. Lafleur, A. Alvarez-Laguna, A. Bourdon, P. Chabert (2021) The interaction between ion transit-time and electron drift instabilities and their effect on anomalous electron transport in Hall thrusters *Plasma Sources Science and Technology*, 30 (6), 065017.
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90. F. Petronio, A. Tavant, T. Charoy, A. Alvarez-Laguna, A. Bourdon, P. Chabert (2021) Conditions of appearance and dynamics of the modified two-stream instability in $E \times B$ discharges *Physics of Plasmas*, 28 (4), 043504
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88. A. Bourdon, F. Pechereau, F. Tholin, Z. Bonaventura (2021) Study of the electric field in a diffuse nanosecond positive ionization wave generated in a pin-to-plane geometry in atmospheric pressure air, *Journal of Physics D : Applied Physics*, 54, 075204

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 10. A. Bourdon, G. Rymer, R. Wanker (2005) Optimization of a 5-Step Kinetic Scheme for HCCI Applications, *Journal of engines, SAE 2004 Transaction Journal*, vol 3, pp 357-366
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 6. A. Bourdon, A. Leroux, P. Domingo, P. Vervisch (1999) Experiment-modeling comparison in a nonequilibrium supersonic air nozzle flow, *Journal of Thermophysics and Heat Transfer*, vol 13, n 1, pp 68-75
 5. A. Bourdon, Y. Tereziak, P. Vervisch (1998) Ionization and recombination rates of atomic oxygen in high temperature plasma flows, *Physical Review E*, vol 57, n 4, pp 4684-4692
 4. A. Bourdon, P. Vervisch (1997) Electron-vibration energy exchange models in nitrogen plasma flows, *Physical Review E*, vol 55, n 4, pp 4634-4641
 3. A. Bourdon, P. Vervisch (1997) Study of a low pressure nitrogen plasma boundary layer over a metallic plate, *Physics of Plasmas*, vol 4, n 11, pp 4144-4157
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Invited Conferences

30. A. Bourdon, On the coupling of neutral and low-temperature magnetized plasma flows in Hall-effect thrusters, Irving Langmuir Plenary Lecture at the *33rd International Symposium on Rarefied Gas Dynamics (RGD33)*, Goettingen, Germany, july 15-19, 2024
29. A. Bourdon, Why are 2D axisymmetric ionization waves generated in a simple point to plane geometry in atmospheric pressure air still studied?, invited lecture at the special session on transient plasma at the *International Conference on Phenomena in Ionized Gases ICPIG XXXV*, Egmond aan See, The Netherlands, july 9-14 2023
28. A. Bourdon, Benjamin Esteves, Nicolas Lequette, Alejandro Alvarez-Laguna, Cyril Drag and Pascal Chabert Chemistry of low pressure iodine plasmas, invited lecture at the *Annual Gaseous Electronics Conference*, Sendai, Japan, october 3-7, 2022

27. A. Bourdon, P. Viegas, Z. Bonaventura, Recent advances in modeling low-temperature kHz atmospheric pressure plasma jets and their interactions with surfaces invited lecture at the *Workshop "plasma modelling"*, *74th Annual Gaseous Electronics Conference Virtual*, october 4, 2021
26. A. Bourdon, Current Modeling and Simulation Challenges of Low-Temperature Plasmas invited lecture at the *67th AVS*, Virtual, October 24-29, 2021
25. A. Bourdon, The electron Boltzmann equation in a wider context, invited lecture at the *Modelling workshop "All about the Boltzmann equation"*, DIFFER, Eindhoven, The Netherlands, december 2, 2019,
24. A. Bourdon, Current challenges in the modeling and validation of PIC and fluid simulations for low-temperature plasmas, invited lecture at the *Workshop on Modeling and validation of the 2019 Gaseous electronic conference*, College station, Texas, USA, october 28, 2019
23. A. Bourdon, The potential of electric and plasma propulsion for medium and long-term planetary exploration : research at LPP and in the Poseidon industrial chair, invited lecture at the *synthesis workshop "Horizon 2061"*, Toulouse, France, September 11-13, 2019
22. A. Bourdon, P. Viegas, A. Obruchnik, Z. Bonaventura, Modeling of low-temperature plasma jets at atmospheric pressure, Topical invited lecture at the *XXXIV International Conference on Phenomena in Ionized Gases (ICPIG) and 10th International Conference on Reactive Plasmas (ICRP-10)*, Sapporo, Japan, July14-19, 2019
21. A. Bourdon, Challenges in the modeling and the simulation of low-temperature plasmas, Plenary lecture at the *24th International Symposium on Plasma Chemistry (ISPC 24)*, Naples, Italy, June 9-14, 2019
20. A. Bourdon, Fluid modeling and simulation of atmospheric pressure discharges : application to plasma-assisted combustion and plasma jets, "journée thématique" cold plasmas, IMFT, Toulouse, june 6, 2019
19. A. Bourdon, Barrier discharge and pulsed discharge modelling, *16th International Symposium on High Pressure Low Temperature Plasma Chemistry (HAKONE XVI)*, Tsinghua University, Beijing, China, September 2-7, 2018
18. A. Bourdon, Challenges in the modeling and the simulation of low-temperature plasma discharges, *Gordon Research Conference (GRC) on "Fundamental Insights in Plasma Processes"*, Bryant University, Smithfield, R.I., USA, August 5 - 10, 2018
17. A. Bourdon, Modeling and simulation of low-temperature plasma discharges, General lecture at the *24th Europhysics Conference on the Atomic and Molecular Physics of Ionised Gases (ESCAMPIG)*, Glasgow, U.K., July 17-21 2018
16. A. Bourdon, Why always more efficient and accurate methods to solve Poisson's equation are needed for electrostatic PIC and fluid plasma simulations? *Plas@par scientific day 2018*, Pierre et Marie Campus, February 9th, 2018
15. A. Bourdon Simulation of nanosecond spark discharges for plasma assisted combustion applications, Plenary lecture at the *44th International Conference on Plasma Science (ICOPS)*, Atlantic City (NJ), May 21-25, 2017
14. A. Bourdon, S. Kobayashi, Z. Bonaventura, F. Tholin, N. Popov, Study of nanosecond discharges in different H₂/air mixtures at atmospheric pressure for plasma-assisted applications, *Kaust Research Conference on New Combustion Concepts*, King Abdullah

University of Science and Technology (KAUST) Thuwal, Saudi Arabia, March 6-8, 2017

13. A. Bourdon, 2D fluid simulations of discharges at atmospheric pressure in reactive gas mixtures, *68th Annual Gaseous Electronics Conference (GEC)*, Honolulu (USA), october 12-16, 2015
12. A. Bourdon, Dynamics and structure of atmospheric pressure discharges in capillary tubes, *20th International Colloquium on Plasma Processes (CIP)*, Saint Etienne, June1-5, 2015
11. A. Bourdon, Fluid simulations for atmospheric pressure low-temperature plasmas, *Workshop on the Exploration of Low Temperature Plasma Physics (WELTPP-17)*, Rolduc, Kerkrade, The Netherlands, november 20-21, 2014
10. A. Bourdon, F. Tholin, Modelling of nanosecond repetitively pulsed discharges, *41st European Physical Society (EPS) conference on Plasma Physics*, Berlin, June 23-27, 2014
9. A. Bourdon, F. Pechereau, P. Viegas and J. Jansky, Simulation of atmospheric pressure helium discharges in capillary tubes and in plasma jets, *5th International Conference on Plasma Medicine (ICPM)*, Nara, Japan, May 18-23, 2014
8. A. Bourdon, Fluid simulations for atmospheric pressure low-temperature plasmas, *International Conference on "Progress in numerical simulations for plasmas : Methods and Results"* organized by the Labex Plas@Par, Paris, March 27, 2014
7. A. Bourdon J. Jansky, F. P  chereau and F. Tholin, Dynamics and structure of discharges in thin dielectric tubes in air and in helium at atmospheric pressure *7th international workshop on microplasmas (IWM)*, Beijing, China, May 20-23, 2013
6. A. Bourdon, Simulations of atmospheric pressure discharges in thin dielectric tubes : application to plasma jets, *IOP Plasma Physics Group Spring Conference*, St Hugh's College, University of Oxford, Oxford, April 2-5 2012
5. A. Bourdon, Modeling of streamer propagation, topical lecture at the *29th International Conference on Partially Ionized Gases(ICPIG)*, Cancun, Mexico, 12-17 july 2009
4. A. Bourdon, Plasma assisted combustion using nanosecond repetitively pulsed discharges, *Gordon Research conference (GRC) on Plasma Processing Science*, Mount Holyoke College, South Hadley, MA, USA, July 13-18, 2008
3. A. Bourdon, P. S  gur, Streamer simulation in air at atmospheric pressure, *Workshop on Streamers, sprites, leaders, lightning : from micro- to macroscales*, Leiden (The Netherlands), 8-12 Oct 2007
2. A. Bourdon, P. S  gur, Numerical modeling of filamentary dielectric barrier discharges in nitrogen taking into account metastable states, *Workshop on the multiscale nature of spark precursors and high altitude lightning*, Leiden (The Netherlands), mai 2005
1. A. Bourdon, Experimental and numerical studies carried out at CORIA, IUSTI and in Russia, *NASDA-NAL/CNES Workshop on catalycity*, Kakuda (Japon), f  vrier 2000